CLAIMS

1. Microstructured optical fibre (12) comprising a core region (1) with a material having a refractive index n_{co} and a microstructured region (2), surrounding the core region (1), with a background material having a refractive index n_m which is lower than the refractive index n_{co}, the microstructured region (2) comprising a plurality of microstructures (4) having a refractive index different from the refractive index n_m, characterized in that the distance Δ_ϕ between the centres of any couple of adjacent microstructures (4) is at least equal to about λ_p and not higher than about $1.5\lambda_p$, wherein λ_p is the spatial variation length of the electric field intensity in the microstructured region (2).

2. Microstructured optical fibre (12) according to claim 1, wherein the distance Δ_ϕ is not higher than about $1.3\lambda_p$.

3. Microstructured optical fibre (12) according to claim 1 or 2, wherein the distance Δ_ρ between the centre of an innermost microstructure (4) and the edge of the core region (1) is at least of about $0.50\lambda_p$.

4. Microstructured optical fibre (12) according to any of claims 1 to 3, wherein the distance Δ_ρ between the centre of an innermost microstructure and the edge of the core region is not higher than about $0.75\lambda_p$.

5. Microstructured optical fibre (12) according to any of claims 1 to 4, wherein λ_p is not higher than 7 μm.

6. Microstructured optical fibre (12) according to any of claims 1 to 5, wherein λ_p is at least of about 1 μm.

7. Microstructured optical fibre (12) according to any of claims 1 to 6, wherein the diameter of the microstructures (4) is at least of about 0.2 μm.

8. Microstructured optical fibre (12) according to any of

claims 1 to 7, wherein the plurality of microstructures (4) is arranged in at least one shell.

9. Microstructured optical fibre (12) according to any of claims 1 to 8 also comprising a cladding region (3) surrounding the microstructured region (2).

10. Microstructured optical fibre (12) according to claim 9, wherein the cladding region (3) comprises a material having a refractive index n_{cl} lower than the refractive index n_m of the background material of the microstructured region (2).

11. Microstructured optical fibre (12) according to any of claims 1 to 10, wherein the microstructures (4) have a refractive index lower than the refractive index n_m of the background material of the microstructured region (2).

12. Optical communication line (13) comprising a microstructured optical fibre (12) according to any of claims 1 to 11.

13. Optical communication system (20) comprising a transmitting station (22) for supplying an optical signal, a receiving station (24) for receiving the optical signal and an optical communication line (12) according to claim 12.

14. Method for making a microstructured optical fibre starting from a target fibre, the method comprising the steps of making a microstructured preform and drawing the microstructured preform into the microstructured optical fibre, wherein the step of making the microstructured preform comprises the steps of

a) providing a core region having a material with a refractive index n_{co};

b) providing a microstructured region, surrounding the core region, having a background material with a refractive

index n_m which is lower than the refractive index n_{co},

c) providing the microstructured region with a plurality of microstructures having a refractive index different from the refractive index n_m;

characterized in that the step of making the preform further comprises the step of

d) spacing the microstructures apart from each other so that in the drawn microstructured optical fibre the distance Δ_ϕ between the centres of any couple of microstructures is at least equal to about λ_p and not higher than about $1.5\lambda_p$, wherein λ_p is the spatial variation length of the electric field intensity of the target fibre.

15. Method according to claim 14, wherein the refractive index difference $\Delta n_{co,m}$ between the core region and the background material of the microstructured region is substantially the same as the refractive index difference between a core region and an outer core region of the target fibre.

16. Method according to claim 14 or 15, wherein the step of making the preform also comprises the step e) of providing a cladding region surrounding the microstructured region.

17. Method according to claim 16, wherein the cladding region provided in step e) has a refractive index n_{cl} so that the refractive index difference $\Delta n_{m,cl}$ between the background material of the microstructured region and the cladding region is substantially the same as the refractive index difference between an outer core region and a cladding region, surrounding the outer core region, of the target fibre.

18. Microstructured optical fibre preform comprising a core region with a material having a refractive index n_{co} and a microstructured region, surrounding the core region, with a background material having a refractive index n_m which is

lower than the refractive index n_{co}, the microstructured region comprising a plurality of microstructures having a refractive index different from the refractive index n_m characterized in that the microstructures are spaced apart so that in a microstructured optical fibre drawn from the preform the distance Λ_ϕ between the centres of any couple of microstructures is at least equal to about λ_p and not higher than about $1.5\lambda_p$, wherein λ_p is the spatial variation length of the electric field intensity in the microstructured region of the microstructured optical fibre drawn from the preform.